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## GENERAL NOTES.

**Note on *Phallus togatus*, Kalchb.**—Probably most of the students of fungi of the United States were surprised at seeing, in the May number of the GAZETTE, a new name attached to the excellent plate of the *Phallus*, from Pennsylvania, collected by Mr. Rau. The species is certainly one long known to mycologists, although they have not been unanimous in deciding upon the name to be given it. The fungus is not rare near Boston, and I have seen it living on several occasions, once almost under the window of the dining-room of my boarding house in Cambridge. I have collected it in the so-called "egg" stage, that is, before the rupture of the peridium, and have watched its growth until the veil was fully expanded. The species has been referred by some writers to *P. indusiatus*, Vent., by others to *P. Dæmonum*, Rumph., and by others still to *P. duplicatus*, Bosc. The determination of the earlier described species of *Phallus* is notoriously difficult, because one has to trust almost entirely to figures which were drawn from poor and frequently pressed material, and, in several cases, it is more than probable that what was wanting in the material examined was supplied by the imagination of the artist.

The species figured in the GAZETTE certainly does not correspond to Ventenat's plate of *P. indusiatus* in the *Mem. de l' Inst. Vol. I., Pl. VII.*, where the veil reaches almost to the ground, is cylindrical and not campanulate in shape, and has much larger perforations. Nor does it seem to me that the species in question is the same as the form figured in the *Dict. d'Hist. Nat. Pl. VII., fig. 1*, as *P. indusiatus*, and later referred by Schlechtendal to his *P. tunicatus*. I think that the species is more properly *P. duplicatus*, Bosc, found by him in South Carolina, and described and figured in his "*Mémoire sur quelques espèces de Champignons des parties méridionales de l'Amérique septentrionale*" in the memoirs of the *Gesellschaft Naturforsch Freunde*, Vol. V., p. 86, Pl. VI., f. 7, published at Berlin in 1811. The plate of Bosc, although far from satisfactory, represents our plant in its essential features. The figure is larger than our plant, although I have seen specimens nearly as large, but the relative position and appearance of the pileus and veil are the same as in our species as usually seen. The figure given in the GAZETTE shows the veil fully expanded, and I have watched the fungus and seen it pass through all the stages from that figured by Bosc to that shown in the GAZETTE. The structure of the fully expanded veil in this species is cribrate rather than clathrate, and although it eventually becomes slightly campanulate and is a third as long as the stipe, or even somewhat longer, one usually finds the veil more or less wrinkled around the stipe. In short, I see no reason why we should not consider that the *Phallus togatus* of Kalchbrenner is the *P. duplicatus* of Bosc, as it corresponds more closely to that species, both in anatomical character and in its habitat than to any other, and, to state the case conversely, if this is not the species of Bosc, mycologists will find it next to impossible to tell what his *P. duplicatus* is.

If we accept this determination as correct, as far as it goes, the question remains whether *P. duplicatus*, Bosc, can not be merged in some previously de-

scribed species. The species, it hardly seems to me, can be referred to *P. indusiatus*, or any of the forms designated by different writers under that name. As I understand that species, the veil is always more delicate and with much larger perforations than in our *P. duplicatus*. Of the true *P. indusiatus* I have seen specimens from Cuba, and, although it is said to occur also in the United States, I have never been so fortunate as to find it. The name *P. indusiatus* occurs in my List of Fungi, near Boston, in *Bull. Bussey Inst.*, Vol. I, p. 433, but, as was explained in a later number of the *Bulletin*, it was a slip of the pen, and the name intended was *duplicatus*. *P. Dæmonum* includes a number of forms of the Eastern hemisphere, and I have no material for forming an opinion of their relation to our fungus. *Phallus Brasiliensis*, Schl., whatever its relation to our plant may be, certainly can not replace the name *duplicatus* which has priority. In conclusion, then, it seems to me that *P. togatus*, Kalch., is nothing more than *P. duplicatus*, Bosc, which name must be retained unless some source of information, at present unknown to me, should show that the species is to be included in *P. indusiatus*.—W. G. FARLOW.

**Chorisis in Podophyllum.**—I found a curious specimen of *Podophyllum peltatum*, which, at the advice of Dr. Asa Gray, I will try to describe for the readers of the GAZETTE. It had a scape of about the size of the ordinary flowering plant, maintaining an almost equal thickness the entire length, the flower being borne sidewise at the tip, with no pedicel of its own. The inner row of petals showed an excellent gradation of *dédoublement*, from the entire petal, through one cleft in the middle, to a petal which was divided into two distinct parts. Of the twenty-one stamens, two were grown together, and on other plants I have occasionally found even three of them thus developed. Cases of *dédoublement* in the stamens are by no means rare with us.—AUG. F. FOERSTE, Dayton, Ohio.

**Notelets.**—I have a few field-notes to communicate. In the first place, I am much impressed this year by what may be called the excessive blooming of the maples; I certainly have never seen anything like the display made by *Acer saccharinum*, L., a week ago, and now by *A. pseudo-platanus*. In both cases I speak of trees in cultivation about our city streets. *A. dasycarpum*, Ehr., a frequent shade tree, is now in abundant fruit. I did not notice any unusual blooming in the species *A. rubrum* and *A. platanoides*. In the latter I have long found it extremely difficult to discover the pistillate flowers; the staminate are certainly much in excess. I know two trees of *A. rubrum*, L., standing side by side, that are strictly dioecious, and others that have a tendency in that direction. *A. saccharinum* came into flower here May 4th.

The alders, of which I noted the surprising lack of staminate catkins last year, have this season outdone themselves in their profusion of male flowers. They were a most beautiful sight. The date of blooming of some other plants may be of interest. April 11th, *Viola odorata*; 12th, *Crocus vernus*; 19th, *Epigæa repens*; 26th, *Taraxacum Dens-leonis*; 27th, *Forsythia viridissima* and *Magnolia grandiflora*; May 3d, *Æsculus Hippocastanum* in leaf, in flower the 21st; 5th, *Oakesia sessilifolia*; 9th, *Amelanchier Canadensis*; 13th, *Menyan-*

thes trifoliata, *Betula alba*, var. *populifolia*, *Carpinus Americana*, and *Arisæma triphyllum*; 19th, *Saxifraga Pennsylvanica* and *Ranunculus abortivus*; 21st, *Geranium maculatum*.

Last autumn I noted the remarkable second flowering of *Menyanthes*; in consequence of that effort, its flowers are rather scarce this spring.—W. W. BAILEY, *Brown University, May 23, 1883*.

**Cundurango.**—The plant received by the Botanic Garden of Harvard University from the Agricultural Department at Washington, about ten years ago, has this year blossomed, for the second time. It proves to be, without doubt, a *Macrosepis*, as Prof. Ernst (in *Trimen's Jour. Bot.* 1872, 268) rightly conjectured. It is not the original Humboldtian species, nor is it Fendler's No. 1051. It is said that there is more than one *Cundurango*; but it may be suspected that the plant which Triana, in *Bull. Soc. Bot. France*, XX. 34, has named *Gunolobus Cundurango*, and also *Marsdenia Reichenbachii*, is the same as ours. It has very marked characters, especially in the very thick and fleshy lobes of the corolline corona; but I have not the means of knowing certainly whether it is a described species or not.—A. GRAY.

**Notes on the Buckeye and *Viburnum nudum*.**—While in the Ash, Beech, Ironwood and other young trees the root soon becomes woody, in the Buckeye it remains *fleshy* for quite a number of years. Specimens that by the rings of scars left by terminal bud scales indicated ages of six, seven and eight years, still had such soft roots that these could be cut with the thumb nail. The tap root is large (several times as thick as the stem of the plant), and spindle shaped, filled with a fleshy white pith, while the layers of wood and bark surrounding this are rather thin. The rootlets are provided with small, whitish, *tuberous* branches and tips.

Another interesting feature of this young Buckeye is that very frequently (I might almost say usually), the two or four buds above the cotyledon scars are *alternate*; above these the normal position again is resumed.

The *Viburnum nudum* ordinarily has opposite buds, though it is by no means a rare occurrence to find them in *whorls of three*, particularly on suckers or upright branches. This mode, however, is continued only by the *main axis*, and in *no case* have I observed that *branches* of such stems bear ternate buds; they always have the usual opposite ones. A sort of "missing link" was supplied by a stem that had at a number of nodes two branches, one-third of the circumference apart, while at the next node was a single branch directly above where the third would have completed the whorl.

In several instances all the buds were alternate, in some again they were irregular.

*Cornus stolonifera* shows the same departure from the regular mode of branching, but in this species the alternate arrangement is more common, while the ternate whorl is rare.—WILLIAM WERTHNER, *Dayton, O.*

**Direct Observation of the Movement of Water in Plants.**—In the *Am. Jour. Sci.*, Mch. '83, p. 237, Dr. G. L. Goodale calls attention to Vesque's direct observations of the absorption of water by plants. The method there given is

as follows: A stem with leaves attached is cut very obliquely (under water), then attached to a glass slide, the cut surface being covered by a thin glass cover or another slide. Some freshly-precipitated calcium oxalate is introduced into the water under the cover-glass when the current passing into the stem is made evident by the granules which are drawn to the mouths of the vessels, accumulating as little plugs at their openings and finally being sucked in. In some experiments to verify these observations, made by Mr. J. M. Waugh under my direction in the botanical laboratory of Purdue University, an improvement upon the method used by Vesque was made. The method as before given was successful, but only after repeated trials and with considerable difficulty in properly illuminating the upper cut surface so as to make the grains of the calcium salt visible. Thinking that other teachers may like to know just the way to make this easy demonstration a success I give the details of the experiment.

The stem of the common *Clematis* of cultivation was selected because of its relatively large vessels. This, after being cut obliquely with a razor, was attached to an ordinary slide by means of two rubber bands and covered with thin glass. The whole of this operation must be performed under water. The superfluous water was then wiped from the slide and it was transferred to the stage of the microscope. The stem must be illuminated from above, either by the mirror, if that swings above the stage, the Lieberkuhn, or the side condensing lens. The lenses best adapted for this observation are the  $\frac{3}{4}$  or  $\frac{2}{3}$  objective with the 2-in. eye-piece. Instead of the calcium oxalate, indigo rubbed into a thin paste with water was employed. The advantage of indigo over the white calcium oxalate lies in the fact that it is very dark, and hence the small grains can be easily seen. The process, as shown by these granules, is a very interesting one. Some collect at the edges of the larger vessels, and some pass directly into the cavity. The observations carried on by Mr. Waugh seem to show that the cross between the imbibition and cavity theories is nearer the truth than either. The granules stick against the edges of the cut wall because water is imbibed by it, and the others continue up the cavity of the vessel because of the current there. Suddenly pinching the stem sets the current backwards, and quickly removing the leaves stops it altogether.—C. R. B.

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## EDITORIAL NOTES.

THE SUBJECT of bacteria is beginning to receive the attention, at the hands of the medical fraternity, that its great importance merits. Two notable works have just appeared from the press of W. T. Keener, Chicago, on bacteria and their relation to disease, by Drs. Gradle and Belfield, of the Chicago Medical Colleges. Both works are carefully written, and will prove interesting reading to others than the class to whom they are specially addressed.

FUNGUS PLANTS, as a source of food, are receiving increased attention in both this country and Europe. A monthly journal, specially devoted to them,